

Migratory behavior and its effect on physiological states in rhinoceros auklets

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Seabirds spend most of their time around the colony in summer breeding season, but they often move over large distances during non-breeding season. During non-breeding season, individual birds may experience different environmental conditions depending on the route and timing of migration, which may affect the physiological states of individuals. Changes in physiological states may affect the return rates and behavior of the individuals in the next breeding season. Such effect is known as ‘carry-over effect’ and has attracted much attention in recent studies on bird migration. Rhinoceros auklet (*Cerorhinca monocerata*) is a long-lived seabird breeding across the North Pacific. A recent study reported that rhinoceros auklets from Teuri Island show two wintering patterns; 75% of auklets wintered around Korean Peninsula, but others remained along the northern coast of Japan in the Japan Sea. However, the cause and consequence of different wintering behaviors remain poorly understood. The purpose of this study was to examine the effects of variation in migratory behavior on the physiological states and subsequent behaviors in rhinoceros auklets. In 2015, we attached 40 geolocators to breeding auklets to monitor their migration, and sampled feathers and blood from each individual to analyze physiological (telomere length, stress hormone levels) and dietary (carbon and nitrogen stable isotope ratios) parameters. In 2016, we recovered 9 geolocators and obtained tracking data from 8 downloaded geolocators. Of those, 6 birds wintered around Korean Peninsula, the other 2 birds remained in the northern coast of Japan. The analyses of obtained samples are ongoing, and we will explore how variations in migratory behavior affect physiological states of individuals based on the results of telomere length changes and stress hormone levels.